

3 dispensing a first material acting as underfill which becomes attached to the integrated
4 circuit and the substrate; and,

5 dispensing a second material acting as ~~underfill~~ a circumferential fillet, the second
6 material having a lower adhesive property than the first material.

1 8. (Previously Amended) The process as recited in claim 7, wherein the first
2 material flows between the integrated circuit and the substrate.

1 9. (Previously Amended) The process as recited in claim 8, wherein the substrate
2 moves within an oven while the first material flows between the integrated circuit and the
3 substrate.

1 10. (Previously Amended) The process as recited in claim 7, wherein the second
2 material is dispensed in a pattern which surrounds the first material.

1 11. (Previously Amended) A process for underfilling an integrated circuit that is
2 mounted to a substrate comprising:

3 heating the substrate before a first material is dispensed;

4 dispensing the first material acting as underfill, the first material becoming attached to the
5 integrated circuit and the substrate; and,

6 dispensing a second material acting as a circumferential fillet, the second material having
7 a lower adhesion property than the first material and becoming attached to the integrated circuit
8 and the substrate.

1 12. (Previously Amended) The process as recited in claim 11, further comprising
2 heating the first material to a gel state.

1 13. (Currently Amended) The process as recited in claim 12, wherein the substrate is
2 heated to a temperature that is greater than a temperature for heating said first material to said
3 partially gel state.

1 14. (Previously Amended) The process as recited in claim 11, further comprising
2 mounting the integrated circuit to the substrate with a solder bump before the first material is
3 dispensed.

1 15-30. (Cancelled.)

1 31. (New) A process for underfilling an integrated circuit that is mounted to a
2 substrate comprising:
3 heating the substrate before a first material is dispensed;
4 dispensing the first material acting as underfill, the first material becoming attached to the
5 integrated circuit and the substrate; and,
6 dispensing a second material only around a periphery of the integrated circuit to act as a
7 circumferential fillet, the second material having a lower adhesion property than the first material
8 and becoming attached to the integrated circuit and the substrate.

1 32. (New) The process as recited in claim 31, further comprising heating the first
2 material to a gel state.

1 33. (New) The process as recited in claim 32, wherein the substrate is heated to a
2 temperature that is greater than a temperature for heating the first material to a partially gel state.

1 34. (New) The process as recited in claim 33, wherein the first material is heated to a
2 temperature ranging between 120 degrees Celsius to 145 degrees Celsius.

1 35. (New) The process as recited in claim 31, wherein the dispensing of the second
2 material is at a temperature ranting between 80 degrees Celsius and 120 degrees Celsius.

REMARKS

This Amendment is in response to the Office Action mailed June 18, 2003. Since the prior amendment has been determined to be non-responsive, and thus, has not been entered. Applicants respectfully request reconsideration of the pending claims as submitted herewith. Claims 7 and 13 have been amended, withdrawn claims 26-30 have been cancelled and claims 31-35 have been added.

In the Office Action, claims 7-10 were rejected under 35 U.S.C. §112, first paragraph. It is alleged that the subject matter “a second material acting as underfill was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.” *See Page 2 of the Office Action.* Applicants respectfully disagree. Throughout the specification, a first material (24) and a second material (26) are described. One embodiment of these materials is described as “underfill” and these materials are subsequently referred to as “underfill materials.” *See Page 8, lines 11-13, 23-25; Page 11, lines 2-6, etc.* However, since one embodiment of the second material is deployed as circumferential fillet, claim 7 has been revised. Applicants respectfully request that this outstanding §112 rejection be withdrawn.

Although not explicitly stated in the Office Action, it appears that claims 7-14 have been rejected under 35 U.S.C. §103(a). Applicants respectfully traverse the §103(a) rejection in its entirety. Applicants respectfully agree with the Examiner that Ameen does not teach the second material having a lower adhesion property than the first material. However, Applicants disagree that there has been any admission that the Semicoat™ materials by Shin-Etsu constitute prior art. Page 8 of the specification describes features of the invention, not a prior art semiconductor packaging scheme. Moreover, the product sheet included in the response filed May 23, 2002, was based on a request for materials under 37 C.F.R. § 1.105. The Semicoat materials were in

use at the time of filing of the application; however, the date of first release has not been confirmed to date. The undersigned attorney is continuing to investigate.

Regardless, even if these materials were in existence and constitute prior art, there is no teaching or suggestion of using a material having a lower adhesion property as circumferential fillet while a material having a higher adhesion property is used as underfill. In accordance with MPEP § 2143.01, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggest the desirability of the combination. *See In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). Herein, there is no suggestion or motivation of this specific usage of materials. Hence, withdrawal of the § 103(a) rejection as applied to independent claims 7 and 11 and those claims dependent thereon is respectfully requested. Consideration of new claims 31-35 is respectfully requested.

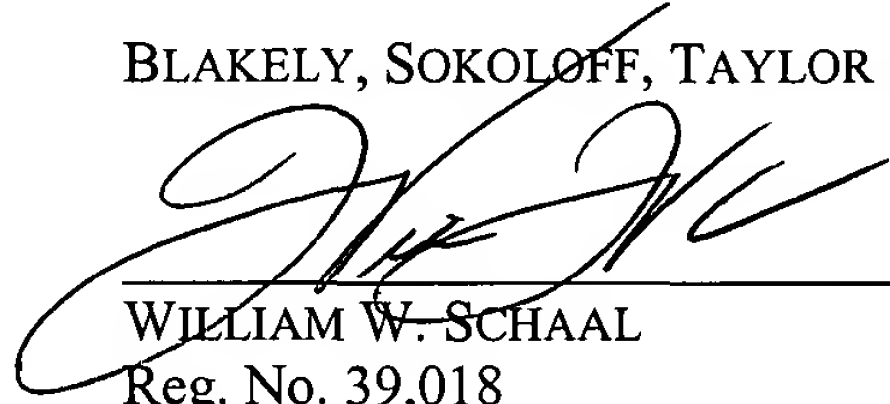
CONCLUSION

In view of the amendments and remarks made above, it is respectfully submitted that all pending claims are in condition for allowance, and such action is respectfully solicited.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being transmitted via facsimile under 37 CFR §1.8 on: July 18, 2003.



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07/18/03
Date